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(PTO ASSISTANCE)

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[RUSH] **MESSAGE:** Please provide missing Amendment AA, inserted on p. 1 of Spec as well as the Abstract.

Thanks for CA

[XRUSH] **RESPONSE:** NO AA amendement

Mary Wilson 703-516-4000

~~David Jakopin~~ ~~650-233-4740~~ **INITIALS:** PS

NOTE: This form will be included as part of the official USPTO record, with the Response document coded as XRUSH.

REV 10/04

960-34

5/5 5/6 5/9

09/192,579

IDENTIFICATION AND CLONING OF A MYCOBACTERIAL ANTIGEN CORRESPONDING TO A HEPARIN-BINDING HAEMAGGLUTININ

The invention relates to peptide sequences enabling mycobacteria to adhere to host cells, in particular to epithelial cells. More particularly, the invention relates to a mycobacterial heparin-binding haemagglutinin (HBHA) type antigen obtained from *Mycobacterium bovis* BCG or *Mycobacterium tuberculosis*. The invention also relates to a recombinant peptide sequence enabling mycobacteria to adhere to host cells. In particular, the invention relates to the expression product of an *Escherichia coli* strain transformed with a nucleotide sequence coding for a protein enabling mycobacteria to adhere to host cells. These polypeptides can be used in immunogenic compositions, to prepare vaccines against mycobacterial infections, and for serological diagnosis of mycobacterial infections.

The invention also relates to a nucleotide sequence coding for a peptide sequence enabling mycobacteria to adhere to host cells, and in particular a nucleotide sequence coding for a mycobacterial heparin-binding haemagglutinin (HBHA) type antigen. The invention also relates to recombinant vectors comprising said nucleotide sequence and to the use of these vectors in producing recombinant host cells which can be used in therapy, in particular in anti-cancer therapy.

Mycobacteria are among the most important pathogenic micro-organisms which cause disease in both man and in animals. Mycobacterial infections are still among the main causes of death in the world. Human tuberculosis, caused by *Mycobacterium tuberculosis*, by itself leads to approximately 3 million deaths per annum (1, 2). *Mycobacterium bovis* causes tuberculosis in cattle, but it is also highly virulent in man. Leprosy, caused by *Mycobacterium leprae*, remains a major unresolved health problem in developing countries (3).

Infections by members of the *Mycobacterium avium intracellulare* complex cause disease in birds and in pigs and are among the most frequent opportunistic infections found in patients suffering from acquired

PJ 5/10/05 This appln is a con of PCT/FR97/00856 05/20/97.

ABSTRACT OF THE DISCLOSURE

The present invention relates to peptide sequences enabling mycobacteria to adhere to host cells (e.g., epithelial cells). More particularly, the invention relates to a mycobacterial heparin-binding haemagglutinin type antigen from *M. bovis* BCG or *M. tuberculosis*. The invention also relates to a recombinant peptide sequence enabling mycobacteria to adhere to host cells. The polypeptides can be used to prepare vaccines against mycobacterial infections and for serological diagnosis of mycobacterial infections.